



## The Do's and Don'ts of Course of Action Wargaming

### Introduction

Despite the doctrinal acceptance and now widespread use of wargaming in the military there remains a lack of comprehension of a set of tools that offer potentially enormous benefits. The development of professional wargaming, historical precedents and some examples of how it might be used and the associated benefits are detailed elsewhere on the [LBS Consultancy web site](#) so I will not cover these here. One widely used type of wargame is Course of Action (COA) Wargaming, which is a mandated part of the decision-making process at all levels. Despite this, COA Wargaming remains poorly understood and often, for this reason, badly executed and then discredited and even discarded. This is simple to remedy, and the suggestions below will go a long way towards achieving this.

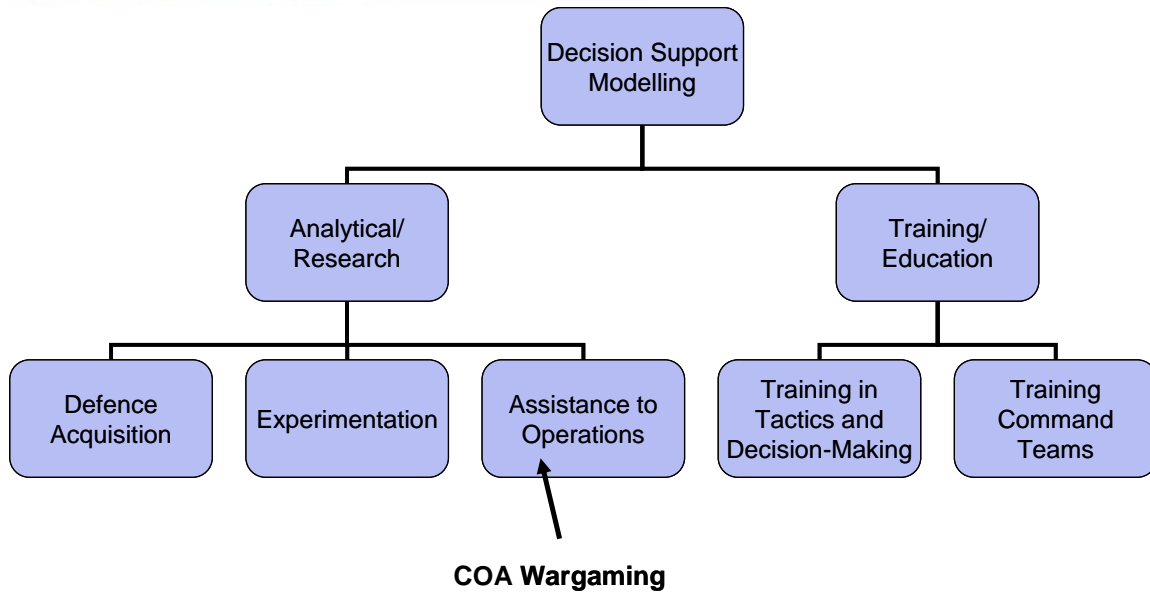
### Aim and Scope

The aim of this article is to spread COA Wargaming best practise.

I will set COA Wargaming in context, describe its aim and – briefly – the processes involved, and show when it is best used. Most importantly, I suggest some do's and don'ts that have been shown to significantly increase the benefits derived from COA Wargaming. I have gleaned these from extensive observation of exercises encompassing the Joint HQ, a Land Component HQ and divisional, brigade and battlegroup HQs plus JSCSC (ACSC and HCSC) and Dstl Operations Analysis (OA) training. A short table summarises the suggestions, followed by a fuller explanation of each. They are all straightforward and easy to implement.

### Course of Action Wargaming in Context

COA Wargaming is but one instance of the tool-set that constitutes professional wargaming. This tool-set is used to assist decision makers make, and practise making, decisions. Figure 1 illustrates areas where wargaming can be employed: each of the four boxes on the bottom line uses a different form(s) of wargame. Whilst some of these are superficially similar, the distinctions between them in terms of aims, inputs and outputs remain poorly understood by the Army. This leads to the frequent misapplication of wargames, confusion between wargaming and simulation (the terms are often – wrongly – used interchangeably) and a failure to realise potential benefits. However, that is a discussion for another time.



**Figure 1: Decision Support Modelling**

For the purpose of this article it is enough to know that COA Wargaming sits in the ‘Assistance to Operations’ box.

Whilst applicable from the tactical to strategic level, most of the following discussion is set at the tactical level because this is where COA Wargaming is mainly used and will be most familiar.

## What is COA Wargaming?

**Definitions.** There is currently neither a formal definition of, nor a stated aim for, COA Wargaming. There have been attempts to describe what it is and what it does, but these are imprecise. ‘Wargaming is a systematic method of analysing a plan in a conscious attempt to visualise the ebb and flow of an operation or battle.’<sup>1</sup> ‘A Wargame is a staff tool designed to visualise the battlefield and the possible interaction between opposing forces.’<sup>2</sup> ‘By wargaming, commanders and staffs attempt to foresee the dynamics of action, reaction and possible counteraction of battle.’<sup>3</sup> ‘Wargaming is a method used to visualise the ebb and flow of the campaign or an operation.’<sup>4</sup>

None of these is wrong, and all of the documents referred to give some suggestions regarding the mechanics of COA Wargaming. But no-one has yet provided clear guidance to practitioners regarding the **aim** of COA Wargaming and the **inputs** and **outputs** required. This is a piece of work that needs to be done.

I suggest the following:

**Aim.** The aim of COA Wargaming is to ‘**identify risks and issues in a forming plan for subsequent analysis.**’ Let’s break that down:

<sup>1</sup> *Land Component Wargaming Reader, JSCSC.*

<sup>2</sup> *Doctrinal Note 00/5, DGD&D.*

<sup>3</sup> *Wargaming Aide Memoire, 3 (UK) Division.*

<sup>4</sup> *Annex 2C to JWP 5-00.*

- 'Risks.' A risk is an area of uncertainty in a plan, typified by a 'what if' question. Risks identified could well lead to a branch and development of a contingency plan(s), allocation of reserves and so forth.
- 'Issues.' An issue is a necessary change to the forming plan, so can encompass anything from alterations in CSS assets to changes to the Synch Matrix and so forth.
- 'Forming plan.' The plan is still evolving. This is what differentiates COA Wargaming from a Mission Rehearsal, a critical distinction that will be expanded later.
- 'Subsequent analysis.' This could be omitted once COA Wargaming practise is better understood. I have included it now because it refers to one of the most frequent mistakes made during COA Wargaming. A COA Wargame is a staff tool. In the same way as factors identified during a Mission Analysis will be allocated to staff branches for detailed consideration (apart from critical ones that have to be examined immediately), so a COA Wargame should produce areas for subsequent detailed consideration after the wargame. More on this later.

**Characteristics.** The primary characteristic of a COA Wargame is that it is adversarial. This must be the case to fully test the forming plan. A second important characteristic is that COA Wargaming will, almost certainly, be carried out under significant time pressure; this impacts how and when it is best conducted.

**Inputs.** The primary inputs to a COA Wargame are:

- The constituent parts of the forming Course of Action under consideration: the drafts of the Concept of Operations, DSO, DSM and synch matrix; the various overlays; taskorgs; and so forth.
- Staff- and OA-produced answers to the Commander's Critical Information Requirements (CCIRs) such as time and space calculations, CSS usage and so forth. As inputs these should be determined *before* the COA Wargame starts; if significant new factors/considerations 'pop up' during the Wargame this indicates poorly focussed CCIRs or insufficient consideration by the staff.
- Enemy intentions. I will expand on this later.
- Military judgement. **This is the final arbiter.** OA, staff work *et al* are simply contributions that assist the decision maker make decisions. These decisions will be based ultimately on his or her experience: military judgement.

**Outputs.** The primary outputs from a COA Wargame are decisions that mitigate the risks and issues identified and/or direction to the staff to find solutions that do this. After due consideration (preferably after the COA Wargame) these will result in a refined plan. Examples of such refinements are endless and might include: the development of contingency plans and reserve options; changes to CS and CSS assets assigned; alterations to control measures and so forth.

## How is COA Wargaming Done?

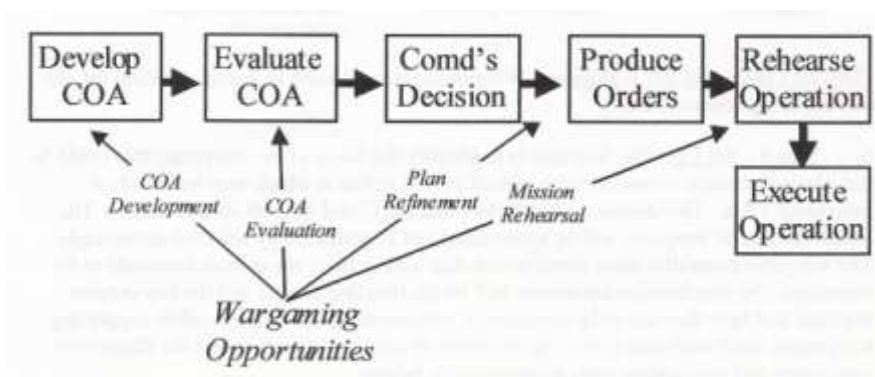
I won't go into too much detail about the mechanics of COA Wargaming as this knowledge is widely available. References 2 to 5 have sections on COA Wargame methods, and the process is taught at CAST and throughout officer training.

**Method.** Suffice it to say that the Action-Reaction-Counteraction method works well, with the side having the initiative taking the 'Action' part of the cycle.

**Participants.** This aspect of COA Wargaming is also well covered in unit and formation SOIs/SOPs. Points that need emphasising are:

- The plan author should **not** have a speaking role and, arguably, should not even be present. I will explain later.
- The umpire/controller must have authority to exert strict control over proceedings.
- Full use should be made of OA. More later.
- All relevant agencies and coalition partners<sup>5</sup> should be present. It is easy to forget to invite 'white' cell personnel such as political advisors, NGO coordinators (security permitting), cognitive analysts and the like.
- The scribe needs to have sufficient experience to understand the operation and be able to pick out and capture important points.

## When should COA Wargaming Occur?



Source: JSCSC

Most existing doctrine states that COA Wargaming can occur at the following points in the decision-making process:

1. During the development of multiple COAs.
2. When evaluating these COAs.
3. When refining the single COA chosen by the commander.
4. To rehearse people in the selected and refined COA.

<sup>5</sup> Coalition partners can sometimes insert a larger 'spanner in the works' than the enemy, so could arguably be placed with the Red Cell! The American, British, Canadian and Australian (ABCA) Armies Programme call this cell the 'Friction Cell', which is a more accurate label.



**Experience shows that time will usually preclude Bullets 1 and 2, certainly at the tactical level.**<sup>6</sup>

Using a set of commander’s criteria is a proven method of selecting the best COA. Conducting a number of lengthy COA Wargames to evaluate each option does not add enough to the process to warrant the time required; very rarely will a series of COA Wargames result in the selection of a different COA from that which would have been chosen by using a good set of commander’s criteria.

An observation concerning the choice of commander’s criteria: instead of (or as well as) using the principles of the operation or the functions in combat, why not use criteria based explicitly on manoeuvrist doctrine? A plan that scores well when measured against Firepower, Tempo, Surprise and Simultaneity will, by definition, have the greatest chance of destroying the opponent’s cohesion. Using Pre-emption, Dislocation and Disruption will attack the enemy’s will. Incorporating Surprise, Shock and Disruption will naturally lead to a plan that is closely aligned to current doctrine.

**Bullet 4 is a Mission Rehearsal not a COA Wargame;** this confusion is one of the most common mistakes I see and degrades both tools, so will be explained in detail later.

**Bullet 3, refining the chosen COA, is the point at which a COA Wargame should – in fact *must* – be conducted.** *It is here that the greatest benefits occur, and there is no other tool or process that delivers the same insights into a forming plan.* Which takes us nicely to the do’s and don’ts when executing the COA Wargame.

### The Do’s and Don’ts

Table 1 summarises the key observations I have made when participating in, or advising on, COA Wargames. HQs that get these right derive great benefit from COA Wargaming (usually more than they were expecting); those that do not tend to plunge down endless ‘rabbit holes’, quickly lose faith and give up COA Wargaming. This is the fault of the HQ, not COA Wargaming.

Do	Do Not
Ensure that the Red Cell plays to win	Forget the aim of COA Wargaming
Manage time ruthlessly	Allow the plan author to participate
Use OA	Confuse a COA Wargame for a Mission Rehearsal
Be flexible in the approach taken	Try to resolve all risks and issues immediately
Record all conclusions and decisions taken	Wargame in lieu of a thorough estimate
Treat COA Wargaming as an essential part of the decision-making process	
Practise!	

**Table 1: COA Wargaming Do’s and Don’ts**

<sup>6</sup> At the operational level and above there might be time to wargame multiple COAs. One example occurred in 1999 when the entry options into Kosovo were considered at length.

## Do:

**Ensure that the Red Cell plays to win.** The Red ('Friction') Cell must play to win to ensure that the forming Blue plan is fully tested; anything other than a robust Red stance will fail to expose all risks and issues. If multiple Red COAs exist then the most dangerous should be wargamed. Red must be aggressive, employ all available capabilities and use deception and surprise.

The use of deception should be discussed and agreed with the umpire/controller before the COA Wargame starts. Irrespective of how much deception is used the Red Cell should only reveal its plan as the COA Wargame unfolds. Current convention is for Red to declare his entire plan at the start. Why? Blue should be forced to react to events as they unfold; otherwise there will be no element of surprise, which is one of the most powerful determinants of a force's cohesion and a plan's success.

A good ploy is to get the Red Cell to conduct a 'reverse estimate' (i.e. from the enemy perspective) in isolation during the Blue Mission Analysis. This ensures an objective Red approach that is not tainted by knowing the Blue plan. Red develops a number of COAs, which are discussed with the umpire; the most dangerous of these is selected, worked up and used in the COA Wargame.

Recent operations demonstrate that friction is often caused by actors other than the enemy. For this reason, the Red Cell should be thought of (even re-named?) as the 'Rainbow' Cell. This connotes the inclusion of any other 'cell' that might induce friction. These cells could include the white (politics, government), green (neutrals) and so forth. The blue cell can also introduce friction, for example by the actions of coalition partners.

**Manage time ruthlessly.** I rarely see a COA Wargame that both finishes within the allotted time and achieves the stated objectives. This is almost invariably due to poor time management. The COA Wargame must be carefully planned, with each wargame objective and event being specified and allocated a time slot. Once the COA Wargame starts, someone must exert draconian control to ensure it keeps flowing, examines the necessary aspects of the operation and meets the specified objectives.

Everybody is not equal during a COA Wargame! Speaking parts must be restricted. Spurious or potentially lengthy discussions must be interrupted; these can, if necessary, be continued after the COA Wargame in the relevant staff branch.

This does not mean that the number of attendees should be slashed. Everyone will gain considerable insights from the COA Wargame and can note points relevant to their own staff branch. These observers should, however, only speak if they see a 'red card' issue that no-one else has identified. Other points can be passed forward in writing to their head of branch (or whoever is allocated a speaking role) for use – or not – as the branch head sees fit.

**Use OA.** 'OA is a general term used to describe the application of scientific and mathematical methods to the analysis of problems for military decision making. It supports the military decision-making process with consistent, objective, numerical analysis that can have an impact on the credibility of, and justification for, decisions.'<sup>7</sup>

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<sup>7</sup> Dstl OA Support to Operations Cell, February 2005.

Well-focused OA is a critical contributor to military judgement. I am certainly **not** suggesting that OA should supplant military judgement – which must remain the final arbiter – and nor would the Dstl OA Cell, but the benefits that can be derived from the good use of OA are enormous. To make best use of OA, the analyst should be given as much detail as possible about the aspect of the operation being studied, and in sufficient time to give him or her the chance to examine it. All too often OA analysts are asked to provide answers ‘on the hoof’ during the COA Wargame itself; they should have been pre-warned about each engagement to be studied so that, when these come up the analyst can provide a considered range of possible outcomes.

Another common occurrence is for military decision-makers to expect OA to provide precise answers; this is neither possible nor desirable. OA will deliver only a spread of likely outcomes, based on the circumstances given to the analyst. The analyst should re-cap the factors he considered before explaining the likely spread of outcomes. Military judgement is then applied to the OA input to decide the action required.

**Be flexible in the approach taken.** Using a prescribed ‘belt, box or avenue’ method tends to constrain and confuse inexperienced COA Wargamers. These terms are a hang-over from the early development of COA Wargaming and add little to the process. The aspects of a forming plan that need to be studied should fall out of the decision-making process conducted to date and should be specified by the commander. They should be related to, and couched in terms of, events on the DSO, DSM and synch matrix: the likely outcomes of the engagement in TAI x; how to deal with an unexpected enemy in NAI y; the maximum amount of artillery ammunition used during a phase of the operation; the locations of casevac assets and so forth. Similarly, the length of each turn need not be standard, and should be dictated by the events being examined.

It might be possible to wargame an entire operation if there is sufficient time, but this is unlikely. Hence only aspects of an operation identified by the commander for COA Wargaming should be examined. Examples could include: an anticipated 12 hour recce screen action across a divisional frontage; or one brigade’s 10km withdrawal to a reserve demolition then the defence of the reserve demolition against a possible airmobile attack. The duration of each of these phases is different so each COA Wargame turn could be of variable length; there is no need for a rigid ‘one turn equals thirty minutes’ approach. The COA Wargame could consist of one turn for each phase of an operation, or the phases might need to be broken down into several turns for more detailed consideration. Yes, each turn might be couched in terms of ‘belt’, ‘avenue’ and ‘box’ respectively – but what does that add? HQs experienced in COA Wargaming seldom refer to these potentially confusing appellations; the reasons for wargaming different aspects of an operation, and hence the best approach to take, should have been clearly identified and are briefed by the umpire/controller.

**Record all conclusions and decisions taken.** Remember that, unless critical, most risks and issues identified will be noted for detailed examination after the COA Wargame. Hence not only must the scribe understand and note sufficient detail for this examination to happen, but a decision must be taken about who will conduct it. This approach is identical to that used during a Mission Analysis, with tasks spinning out of the process for staff branches or officers to lead on. This must all be recorded as the COA Wargame progresses.

**Treat COA Wargaming as an essential part of the decision-making process.** As discussed above, COA Wargaming must be used when refining the selected COA. It can be used elsewhere in the decision-making process, but only if time permits.





**Practise.** Like all HQ functions, COA Wargaming must be taught then practised (and captured in SOPs) before deployment. This is easy, and a half-day session will suffice.

### **Do not:**

**Forget the aim of COA Wargaming.** This is to ‘identify risks and issues in a forming plan for subsequent analysis.’

**Allow the plan author to participate.** This is contentious! Having the plan author (almost certainly the commander) controlling the COA Wargame almost inevitably leads to the plan not being fully tested. The reasons for this are obvious: force of personality; subordinates fearing for their OJARs if they find fault with the plan and so forth. There is a strong argument for the plan author not even to be present. If he is, then he should not have a speaking part. Easier said than done, admittedly!

**Confuse a COA Wargame for a Mission Rehearsal.** The aim of a Mission Rehearsal is ‘**to familiarise subordinates with a formed plan**’. The most common cause I see for a COA Wargame failing to achieve its aim is participants confusing it for a Mission Rehearsal. When the event falls somewhere between these two tools neither aim is satisfied, little of use is generated other than lengthy and inconclusive discussions and people quickly become disenchanted.

No new risks or issues should be raised during a Mission Rehearsal. The enemy options should by now have been thoroughly examined so the Red Cell is compliant, simply describing the *most likely* Red COA. For this reason there is no ‘Counteraction’ part of each turn as new factors should not be introduced.

The commander *should* lead the Mission Rehearsal as it provides **the** best chance for him to reinforce his Intent and to impose his will on subordinates. It is an even better opportunity to do this than oral orders because everyone has had time to assimilate and analyse the operation; their part in the plan can be confirmed and any concerns cleared up.

**Try to resolve all risks and issues immediately.** The COA Wargame will almost certainly run out of time if an attempt is made to deal immediately with all risks and issues identified (and participants will lose the will to live). Treat the outputs from a COA Wargame in the same way as those from a Mission Analysis. If a key risk or issue is identified that must be examined immediately, then do so, but allocate all others to staff members or branches for detailed examination after the COA Wargame.

**Wargame in lieu of a thorough estimate.** By the time the COA Wargame is conducted most relevant factors should already have been identified and analysed during the normal decision-making process. These then provide inputs to the COA Wargame. Examples include movement times, troops to task and so forth. Done properly, the COA Wargame will expose further considerations and re-define some already examined. However, the start point for the COA Wargame is after significant staff work has been done and the tool should not replace staff effort.<sup>8</sup>

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<sup>8</sup> The US Army has experimented with the use of COA Wargames from the outset of the decision-making process, but this takes so much time as to make it impracticable.





## A Way Forward

**Consolidated COA Wargaming doctrine.** I am not aware of any publication that provides comprehensive direction to COA Wargaming practitioners. References 2 – 5 make some suggestions, and some units and formations have developed COA Wargaming SOPs to a degree. For a tool that can add so much to the decision-making process it is surprising that no complete central guidance has been produced. This needs to be done and should codify best practise at the tactical level.

**COA Wargaming at the operational and strategic levels.** The DCDC, JFHQ and JSCSC are still grappling with the application of COA Wargaming to an Effects-Based arena. Observations from PJHQ's Exercise JOINT VENTURE and JOINT FOCUS exercises confirm that there remains a capability gap for COA Wargaming. This existed prior to the incorporation of Effects-Based thinking. I would suggest that a wide-ranging reassessment of the role, scope and practice of COA Wargaming within JFHQ planning should be undertaken, supported by concept development for Effects-Based Operations.

There is no doubt in my mind that COA Wargaming, when well done, delivers significant benefits. More work is required that translates tactical level COA Wargaming best practise to the operational and strategic levels, where Effects-Based thinking now – quite rightly – dominates.

## Conclusion

Well executed COA Wargaming significantly enhances the decision-making process. Despite its growing use, it is a tool (along with wider applications of professional wargaming) that remains poorly understood and badly used.

There is no consolidated and all-embracing doctrine that explains COA Wargaming to practitioners. This should include its context, definitions, aim, inputs, outputs, characteristics, methods used and when it should occur. This is a piece of work that must be done, and it has to encompass the operational and strategic levels and Effects-Based thinking.

COA Wargaming at the tactical level is simple to conduct. If used, the do's and don'ts suggested above would go a long way to ensuring that the potential benefits offered by COA Wargaming are realised.

Based on numerous opportunities to observe recent exercises at all levels I am convinced that, after only a little exposure to properly executed COA Wargaming, any Field Army HQ would recognise it for what it is: just another staff tool, but one that offers insights to a forming plan that no other process can; it is therefore an indispensable device that should be integral to the decision-making process and enshrined as such in our doctrine.